

WHAT IS CLAIMED IS:

1. A thin-film piezoelectric resonator comprising:
a piezoelectric thin film having piezoelectric
characteristic; and

5 an upper electrode and a lower electrode arranged on
opposite surfaces of said piezoelectric thin film for applying
an excitation voltage to said piezoelectric thin film,

wherein each of said upper electrode and said lower
electrode includes a resonant portion and a lead-out portion,

10 and

an electrode thickness of at least one part of said lead-out
portion in at least one of said upper electrode and said lower
electrode is larger than an electrode thickness of said resonant
portion formed to be continued from said lead-out portion.

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2. A thin-film piezoelectric resonator comprising:
a piezoelectric thin film having piezoelectric
characteristic;

an upper electrode and a lower electrode arranged on
20 opposite surfaces of said piezoelectric thin film for applying
an excitation voltage to said piezoelectric thin film; and

ground electrodes arranged on the same plane with at least
one of said upper electrode and said lower electrode,

wherein each of said upper electrode and said lower
25 electrode includes a resonant portion and a lead-out portion,

and

an electrode thickness of at least one part of each of
said ground electrodes is larger than an electrode thickness
of said resonant portion in one of said upper electrode and said
5 lower electrode which is formed on the same plane with said ground
electrodes.

3. A thin-film piezoelectric resonator comprising:
a piezoelectric thin film having piezoelectric
10 characteristic; and

an upper electrode and a lower electrode arranged on
opposite surfaces of said piezoelectric thin film for applying
an excitation voltage to said piezoelectric thin film,

wherein each of said upper electrode and said lower
15 electrode includes a resonant portion and a lead-out portion,
and

said lead-out portion in at least one of said upper
electrode and said lower electrode is different in electrode
material from said resonant portion formed to be continued from
20 said lead-out portion.

4. A thin-film piezoelectric resonator according to
Claim 3, wherein at least one part of said lead-out portion is
formed by stacking layers with different electrode materials,
25 where one of said stacked electrode is formed to be continued

from said resonant portion.

5 5. A thin-film piezoelectric resonator according to
any one of Claims 1 through 4, wherein said piezoelectric thin
film has a thickness of not larger than 5 μm .

6. A filter including at least one thin-film
piezoelectric resonator defined in any one of Claims 1 through
4.

10 7. A duplexer including at least one thin-film
piezoelectric resonator defined in any one of Claims 1 through
4.

15 8. A method of fabricating a thin-film piezoelectric
resonator including a piezoelectric thin film having
piezoelectric characteristic, and an upper electrode and a lower
electrode arranged on opposite surfaces of said piezoelectric
thin film for applying an excitation voltage to said
piezoelectric thin film, said method comprising the step of:

20 forming said lower electrode and said upper electrode,
at least one of forming step of said upper electrode and said
lower electrode including at least two film-forming and
patterning processes, wherein a mask used in the first patterning
process is different in shape from a mask used in the second
patterning process or in the patterning process after the second
patterning process.